Duplexing Working Group

ENERGY STAR Imaging Partner and EPA Challenge

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Why Does Duplexing Matter?

- It takes 10 times as much energy to produce a sheet of paper than to place an image on it
- The average U.S. office worker uses 10,000 sheets of paper each year
- Duplexing and other efficient uses of paper offer tremendous energy saving opportunities

EPA Commitment to Duplexing

- Default duplex is now *optional* for all copiers speeds
- EPA recognizes the need to educate workers, change behavior, rather than solely introduce set-up changes
- EPA will support a partnership to improve duplex rates to achieve the energy and cost savings possible

Copy Paper Context

	million tons/year	$ billion/year
Paper industry	~90	130
Copy paper	~ 4	~ 4

- Energy content of paper: 16 Wh/sheet
- Paper vs. Electricity:
  - Paper: 7 TWh/year (~$2.2 billion/year)
  - Electricity: 7 TWh/year (~$500 million/year)

Background on Paper and Energy

- By increasing the U.S. duplex rate by just 25% for just copier-based paper:
  - We would save $671 million on paper purchases
  - 2.1 billion kWh embodied in the paper each year

Paper as Energy

- Embodied energy in copy paper: 16 Wh/sheet (17 Wh for virgin; 12 Wh for 100% recycled)
- Typical office worker: 10,000 sheets/year or 5 sheets/hour

Paper as Energy

- 5 sheets/hour * 16 Wh/sheet = 80W
- 64 sheets = 1 kWh; 64 sheets cost 32 cents, so:
  - Paper is 4 times cost of electricity, on energy basis

Key: Treat paper as flow, not as discrete objects

Paper Efficiency

Definition

Mass of paper per unit of service delivered

Methods:

- Duplexing
- Image avoidance
- Increasing content/area ratio (“n-up” imaging)
- “Thinner” paper

Duplexing Working Group Kick-Off

- Goals of duplexing working group:
  - Establish double-sided imaging as the default setting for U.S. office workers in 10 years
  - Achieve a 60% average duplex rate
  - Save $670 million, over 2 billion kWh each year

Opportunities to Improve Paper Efficiency

- Transition to digital devices
- Copier vendors, dealers as document management service providers
- Increased attention to Total Cost of Ownership, cost of consumables
- Growth of SOHO

Challenges

- Behavior
  - Simplex as default habit
  - Reliability problems
- Technical
  - Speed of duplexing
  - User-friendly controls
  - Fax-friendly hard copy

Working Group Activities

- Research
  - Control panels: user-friendliness
  - Current use of duplex option
  - Documents where duplexing is practical
  - Major barriers to increasing duplex rate

Working Group Activities

- Technical Advances:
  - Improved speed
  - Increased reliability
  - User friendly control panel, standard control features
  - User friendly printer drivers
  - Paper quality
  - “Smart” duplex controls (senses whether 1:2 or 2:2 is required, user only presses a duplex key)

Working Group Activities

- Educational Challenges:
  - Benefits of duplexing: cost, resource savings, efficiency
  - Behavioral shifts: establish best practices
  - Reach U.S. office workers
  - Work with MIS staff, key operators, SOHO